

CLAIMS

We claim:

1. A drive mechanism for moving a sliding door relative to an enclosure, said sliding door having a first lateral side and a second lateral side, said drive mechanism comprising:

a drive assembly comprising:

a first drive subassembly that is adjacent said first lateral side of said sliding door; and

a second drive subassembly that is adjacent said second lateral side of said sliding door; and

a door linking assembly that is configured to be moved between:

(A) a first position, in which said door linking assembly is positioned to link said sliding door to said drive assembly and thereby allow said drive assembly to slide said sliding door relative to said enclosure; and

(B) a second position, in which said door linking assembly is not positioned to link said sliding door to said drive assembly.

2. The drive mechanism of Claim 1, wherein said first and second doors are positioned in a substantially vertical array.

3. The drive mechanism of Claim 1, wherein said drive mechanism comprises a door linking assembly drive mechanism that is configured for moving said door linking assembly between said first and second positions.

4. The drive mechanism of Claim 1, wherein said door linking assembly is adapted to link said sliding door to said first drive subassembly when said door linking assembly is in said first position.

5. The drive mechanism of Claim 4, wherein said door linking assembly is adapted so that when said door linking assembly is in said second position, said door linking assembly is positioned to prevent a user from opening said sliding door.

6. The drive mechanism of Claim 1, wherein said door linking assembly is adapted to link said sliding door to both said first drive subassembly and said second drive subassembly when said door linking assembly is in said first position.

7. The drive mechanism of Claim 6, wherein said door linking assembly is adapted so that when said door linking assembly is in said second position, said door linking assembly is positioned to prevent a user from opening said sliding door.

8. The drive mechanism of Claim 7, wherein said door linking assembly is configured to engage a restricting member adjacent said sliding door when said door linking assembly is in said second position and thereby prevent said user from opening said sliding door.

9. The drive mechanism of Claim 8, wherein:
said restricting member is a first restricting member that is located adjacent said first lateral side of said sliding door; and

said door linking assembly is configured to engage both said first restricting member and a second restricting member when said door linking assembly is in said second position, said second restricting member being located adjacent said second lateral side of said sliding door.

10. The drive mechanism of Claim 1, wherein said door linking assembly is configured so that when said door linking assembly is in said second position, said door linking assembly is positioned to prevent a user from opening said sliding door.

11. The drive mechanism of Claim 10, wherein said door linking assembly is adapted to engage a restricting member adjacent said sliding door when said door linking assembly is in said second position and thereby prevent said user from opening said sliding door.

12. The drive mechanism of Claim 11, wherein:
said restricting member is a first restricting member that is located adjacent said first lateral side of said sliding door; and
said door linking assembly is configured to engage both said first restricting member and a second restricting member when said door linking assembly is in said second position, said second restricting member being located adjacent said second lateral side of said sliding door.

13. The drive mechanism of Claim 1, wherein said door linking assembly comprises a rotatable member that is adapted so that:
when said door linking assembly is in said first position, said rotatable member is in a first angular orientation in which said rotatable member engages said drive assembly so that said drive assembly is in driving engagement with said sliding door; and
when said door linking assembly is in said second position, said rotatable member is in a second angular orientation in which said rotatable member does not engage said drive assembly in a manner that causes said drive assembly to be in driving engagement with said sliding door.

14. The drive mechanism of Claim 13, wherein said rotatable member is adapted so that when said door linking assembly is in said second position, said rotatable member engages a restricting member adjacent said door.

15. The drive mechanism of Claim 14, wherein said rotatable member is adapted so that:

when said door linking assembly is in said first position, a first portion of said rotatable member engages said drive assembly; and

when said door linking assembly is in said second position, a second portion of said rotatable member engages said restricting member.

16. The drive mechanism of Claim 15, wherein:

said first portion of said rotatable member is a first elongate portion of said rotatable member; and

said second portion of said rotatable member is a second elongate portion of said rotatable member.

17. The drive mechanism of Claim 16, wherein said rotatable member is substantially U-shaped.

18. The drive mechanism of Claim 16, wherein said rotatable member is substantially V-shaped.

19. The drive mechanism of Claim 1, wherein said door linking assembly is configured to prevent said user from opening said sliding door by simultaneously engaging a first restricting member adjacent said first lateral side of said sliding door, and engaging a second restricting member adjacent a second lateral side of said sliding door.

20. A dispenser for dispensing items to a user, said dispenser comprising:

a plurality of compartments, each of said compartments defining an interior portion and an opening through which a user may access items stored within said interior portion;

a first sliding door that is positioned to selectively restrict access to a first one of said compartments by sliding between a first-door closed position, in which said first sliding door prevents users from accessing an interior portion of said first compartment, and a first-door open position, in which said first sliding door allows users to access said interior portion of said first compartment, said first sliding door being positioned in front of an access opening of said first compartment when said first sliding door is in said first-door closed position, and said first sliding door being positioned substantially below said access opening of said first compartment when said first sliding door is in said first-door open position; and

a second sliding door that is positioned to selectively restrict access to a second one of said compartments by sliding between a second-door closed position, in which said second sliding door prevents users from accessing an interior portion of said second compartment, and a second-door open position, in which said second sliding door allows users to access said interior portion of said second compartment, said second sliding door being positioned in front of an access opening of said second compartment when said second sliding door is in said second-door closed position, and said second sliding door being positioned substantially above said access opening of said second compartment when said second sliding door is in said second-door open position.

21. The dispenser of Claim 20, wherein said first and second sliding doors are arranged in a substantially vertical array.

22. The dispenser of Claim 20, further comprising a single drive assembly that is adapted to:

move said first door between said first-door open position and first-door closed position; and

move said second door between said second-door open position and second-door closed position.

23. The dispenser of Claim 20 further comprising:

a third sliding door that is positioned to selectively restrict access to a third one of said compartments by sliding between a third-door closed position, in which said third sliding door prevents users from accessing an interior portion of said third compartment, and a third-door open position, in which said third sliding door allows users to access said interior portion of said third compartment, said third sliding door being positioned in front of an access opening of said third compartment when said third sliding door is in said door-compartment closed position, and said third sliding door being positioned substantially above said access opening of said third compartment when said third sliding door is in said third-door open position.

24. The dispenser of Claim 23, further comprising a single drive assembly that is adapted to:

move said first door between said first-door open position and first-door closed position;

move said second door between said second-door open position and second-door closed position; and

move said third door between said third-door open position and third-door closed position.

25. The dispenser of Claim 23, wherein said first sliding door is disposed adjacent a top portion of said dispenser when said first sliding door is in said first-door closed position.

26. A dispenser for dispensing items to a user, said dispenser comprising:
a plurality of compartments, each of said compartments defining an interior portion and an opening through which a user may access items stored within said interior portion;

a first sliding door that is associated with a first one of said compartments, and that is positioned to selectively restrict access to said first one of said compartments by sliding, in a substantially vertical direction, between a first-door closed position, in which said first sliding door prevents users from accessing an interior portion of said first compartment, and a first-door open position, in which said first sliding door allows users to access said interior portion of said first compartment; and

a second sliding door that is associated with a second one of said compartments, and that is positioned to selectively restrict access to said second one of said compartments by sliding, in a substantially vertical direction, between a second-door closed position, in which said second sliding door prevents users from accessing an interior portion of said second compartment, and a second-door open position, in which said second sliding door allows users to access said interior portion of said second compartment.

27. The dispenser of Claim 26, further comprising a single drive assembly that is adapted to:

move said first door between said first-door open position and first-door closed position; and

move said second door between said second-door open position and second-door closed position.

28. The dispenser of Claim 26, further comprising:

a third sliding door that is positioned to selectively restrict access to a third one of said compartments by sliding, in a substantially vertical direction, between a third-door closed position, in which said third sliding door prevents users from accessing an interior portion of said third compartment, and a third-door open position, in which said third sliding door allows users to access said interior portion of said third compartment.

29. The dispenser of Claim 28, wherein said first, second, and third sliding doors are arranged in a substantially vertical array.

30. The dispenser of Claim 28, further comprising a single drive assembly that is adapted to:

move said first door between said first-door open position and first-door closed position;

move said second door between said second-door open position and second-door closed position; and

move said third door between said third-door open position and third-door closed position.

31. The dispenser of Claim 28, wherein said first sliding door is disposed adjacent a top portion of said dispenser when said first sliding door is in said first-door closed position.

32. A dispenser for dispensing items to a user, said dispenser comprising:
a compartment that defines both an interior portion and an opening through which
a user may access said interior portion;

a sliding door that is adapted to selectively restrict access to said compartment by
sliding between a door closed position, in which said sliding door prevents users from
accessing said interior portion of said compartment, and a door open position, in which
said sliding door allows users to access said interior portion of said compartment;

a door support that is adapted to support said sliding door when said sliding door
is in said door closed position, said door support being adapted to be moved from a first
position in which said door support is positioned to support said door when said door is in
said door closed position, and a second position in which said door support is not
positioned to support said door when said door is in said door closed position; and

a drive mechanism that is adapted to move said sliding door from said door closed
position to an intermediate position in which said door support is out of supporting
engagement with said sliding door.

33. The dispenser of Claim 32, wherein said drive mechanism is a first drive
mechanism and said dispenser further comprises a second drive mechanism for moving
said door support between said first and second positions.

34. The dispenser of Claim 33, wherein said second drive mechanism is
configured to move said door support from said first position to said second position
while said door is in said intermediate position, and said first drive mechanism is
configured to move said sliding door from said intermediate position to said door open
position after said second drive mechanism has moved said door support into said second
position.

35. The dispenser of Claim 32, wherein said door support is extended when in
said first position and retracted when in said second position.

36. A method of dispensing items to a customer, said method comprising:
providing a first door that is adapted to selectively restrict access to a first set of one or more items by sliding in a first substantially vertical direction relative to said dispenser; and

providing a second door that is adapted to selectively restrict access to a second set of one or more items by sliding in a second substantially vertical direction relative to said dispenser, said second substantially vertical direction being substantially opposite said first substantially vertical direction.

37. The method of Claim 36, wherein said first and second doors are positioned in a substantially vertical array.

38. The method of Claim 36, further comprising the step of providing a single drive assembly that is adapted to:

move said first door in said first substantially vertical direction; and
move said second door in said second substantially vertical direction.

39. The method of Claim 36, further comprising the step of providing a third user door that is adapted to selectively allow access to a third set of one or more items by moving in said second substantially vertical direction relative to said dispenser.

40. The method of Claim 39, wherein said first, second, and third doors are positioned in a substantially vertical array.

41. The method of Claim 39, further comprising the step of providing a single drive assembly that is adapted to:

move said first door in said first substantially vertical direction; and
move said second and third doors in said second substantially vertical direction.

42. The dispenser of Claim 41, wherein said single drive assembly is further adapted to move said third door between said third-door open position and third-door closed position.

43. A drive mechanism for moving a sliding door relative to an enclosure, said drive mechanism comprising:

a drive assembly;

a door linking assembly that is configured to be moved between:

(A) a first position, in which said door linking assembly is positioned to link said sliding door to said drive assembly, and thereby allow said drive assembly to slide said door relative to said enclosure; and

(B) a second position, in which said door linking assembly is positioned to prevent a user from moving said sliding door into an open position.

44. The drive mechanism of Claim 43, wherein:

said drive assembly comprises a first drive subassembly and a second drive subassembly; and

said door linking assembly links said sliding door to both said first drive subassembly and said second drive subassembly when said door linking assembly is in said first position.

45. The drive mechanism of Claim 44, wherein said first and second drive subassemblies are disposed adjacent opposite lateral sides of said sliding door.

46. The drive mechanism of Claim 43, wherein said door linking assembly is configured to engage a restricting member adjacent said sliding door when said door linking assembly is in said second position and thereby prevent said user from opening said sliding door.

47. The drive mechanism of Claim 46, wherein:

said restricting member is a first restricting member that is located adjacent said first lateral side of said sliding door; and

said door linking assembly is configured to engage both said first restricting member and a second restricting member when said door linking assembly is in said second position, said second restricting member being located adjacent said second lateral side of said sliding door.

48. The drive mechanism of Claim 43, wherein said door linking assembly comprises a rotatable member that is adapted so that:

when said door linking assembly is in said first position, said rotatable member is in a first angular orientation in which said rotatable member engages said drive assembly so that said drive assembly is in driving engagement with said sliding door; and

when said door linking assembly is in said second position, said rotatable member is in a second angular orientation in which said rotatable member does not engage said drive assembly in a manner that causes said drive assembly to be in driving engagement with said sliding door.

49. The drive mechanism of Claim 48, wherein said rotatable member is adapted so that when said door linking assembly is in said second position, said rotatable member engages a restricting member adjacent said door.

50. The drive mechanism of Claim 49, wherein said rotatable member is adapted so that:

when said door linking assembly is in said first position, a first portion of said rotatable member engages said drive assembly; and

when said door linking assembly is in said second position, a second portion of said rotatable member engages said restricting member.

51. The drive mechanism of Claim 50, wherein:
said first portion of said rotatable member is a first elongate portion of said rotatable member; and
said second portion of said rotatable member is a second elongate portion of said rotatable member.

52. The drive mechanism of Claim 51, wherein said rotatable member is substantially U-shaped.

53. The drive mechanism of Claim 51, wherein said rotatable member is substantially V-shaped.